

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (currently amended) A method of granting mini-slots to a cable modem (CM) by a cable modem termination system (CMTS), the method comprising:
  - maintaining performance statistics of the CM by the CMTS;
  - receiving a bandwidth request by the CMTS from the CM;
  - determining whether the CM is dynamic burst profile mode capable after receiving the bandwidth request; and
    - if the CM is determined to be dynamic burst profile mode capable, assigning a burst profile and granting [[mini slots]] mini-slots to the CM based on the burst profile and the bandwidth request; and
      - if the CM is determined not to be dynamic burst profile mode capable, assigning another burst profile and granting [[mini slots]] mini-slots to the CM based on the another burst profile and the bandwidth request.
2. (original) A method according to claim 1, wherein the assigning of the another burst profile is based on industry standards.

3. (currently amended) A method according to claim 2, wherein the industry specifications standards comprises comprise Data Over Cable Service interface Interface Specifications (DOCSIS).

4. (currently amended) A method according to claim 1, wherein the assigned burst profile is based on performance measurements and a robustness level of the CM.

5. (currently amended) A method according to claim 1, wherein [[the]] a robustness level of the assigned burst profile is determined by a modulation type, [[the]] a length of a preamble, an amount of Reed-Solomon error corrections, and a size of a Reed-Solomon codeword.

6. (original) A method according to claim 1 further comprises using a registration process for determining whether the CM is dynamic burst profile mode capable.

7. (original) A method according to claim 1 further comprising using the bandwidth request for determining whether the CM is dynamic burst profile mode capable.

8. (currently amended) A method for increasing physical layer flexibility in a cable modem system, the cable modem system including a cable modem (CM) coupled to

a cable modem termination system (CMTS) through an access network, the method comprising;

providing the CMTS that is capable of maintaining performance statistics of the CM and receiving a bandwidth request from the CM;

determining whether the CM is dynamic burst profile mode capable; [[and]]

assigning a burst profile from a plurality of burst profiles communicated to the CM; and

granting mini-slots to the CM, the number of mini-slots granted to the CM dependent on whether the CM is dynamic burst profile mode capable.

9. (original) A method according to claim 8, wherein the assigned burst profile is dependent on whether the CM is dynamic burst profile mode capable.

10. (original) A method according to claim 9, wherein if the CM is not dynamic burst profile mode capable, the assigned burst profile is based on industry standards.

11. (currently amended) A method according to claim 10, wherein the industry specifications standards comprises comprise Data Over Cable Service interface Interface Specifications (DOCSIS).

12. (currently amended) A method according to claim 8, wherein if the CM is dynamic burst profile mode capable, the assigned burst profile is based on performance measurements and a robustness level of the CM.

13. (currently amended) A method according to claim 12, wherein the robustness level of the assigned burst profile is determined by modulation type, [[the]] a length of a preamble, an amount of Reed-Solomon error corrections, and a size of a Reed-Solomon codeword.

14. (original) A method according to claim 8 further comprises determining whether the CM is dynamic burst profile mode capable using a registration process.

15. (original) A method according to claim 8 further comprises determining whether the CM is dynamic burst profile mode capable using a bandwidth request of the CM.

16. (new) The method of claim 1, further comprising:  
receiving, by the CM, an upstream channel descriptor message including a plurality of burst profiles from the CMTS if the CM is determined to be dynamic burst profile mode capable.

17. (new) The method of claim 1, wherein:  
the assigning the burst profile comprises specifying an Interval Usage Code,  
corresponding to the burst profile, in a MAP message.
  
18. (new) The method of claim 6, further comprising:  
reporting, by the CM to the CMTS during the registration process, a number of  
burst profiles for granted data that the CM can support.
  
19. (new) The method of claim 8, further comprising:  
receiving, by the CM, an upstream channel descriptor message including a  
plurality of burst profiles from the CMTS if the CM is determined to be dynamic burst  
profile mode capable.
  
20. (new) The method of claim 8, wherein:  
the assigning the burst profile comprises specifying an Interval Usage Code,  
corresponding to the burst profile, in a MAP message.
  
21. (new) The method of claim 14, further comprising:  
reporting, by the CM to the CMTS during the registration process, a number of  
burst profiles for granted data the cable modem can support.